CLAIMS

1. A tempo analyzing apparatus comprising:

a peak detecting means for detecting positions of a plurality of ones, higher than a predetermined threshold, of peaks of change in level of an input sound signal;

a time interval detecting means for detecting a time interval between the peak positions detected by the peak detecting means in a predetermined unit-time interval; and

an identifying means for identifying the tempo of sound to be reproduced with the sound signal on the basis of a frequently occurring one of the time intervals detected by the time interval detecting means.

2. The apparatus according to claim 1, wherein the identifying means accumulates the frequency of occurrence of the time interval between the positions of peaks detected in a plurality of unit-time intervals and identifies the tempo of the sound to be reproduced on the basis of the accumulated frequency of occurrence.

3. The apparatus according to claim 1, further comprising a frequency band dividing means for dividing an input signal into a plurality of frequency bands,

the peak detecting means detecting the peak positions for each of at least one or more ones of the plurality of frequency bands divided by the frequency band dividing means;

the time interval detecting means detecting a time interval between peak positions

detected for each of at least one or more frequency bands by the peak detecting means; and

the identifying means identifying the tempo of sound to be reproduced on the basis of the frequently occurring one of the time intervals detected for each of at least one or more frequency bands.

4.   The apparatus according to claim 1, further comprising a frequency band extracting means for extracting a sound signal of a frequency in a predetermined frequency band from an input sound signal,

the peak detecting means detecting the peak position of a sound signal extracted by the frequency band extracting means.

5.   The apparatus according to claim 1, further comprising:

a volume calculating means for calculating the volume of the input sound signal; and

a threshold setting means for setting the threshold used to detect a peak position with reference to the volume calculated by the volume calculating means.

6.   The apparatus according to claim 3, further comprising:

a volume calculating means for calculating the volumes of sound signals of frequencies included in at least one or mode of the plurality of frequency bands divided by the frequency band dividing means; and

a threshold setting means for setting the threshold used to detect a peak position with reference to the volume calculated by the volume calculating means.

7.   The apparatus according to claim 4, further comprising:

a volume calculating means for calculating the volume of the sound signal

extracted by the frequency band extracting means; and

a threshold setting means for setting a threshold used for to detect a peak

position with reference to the volume calculated by the volume calculating means.

8.   The apparatus according to claim 1, further comprising:

an image display device;

a storage means for storing video data on a plurality of images displayable on the

image display element; and

a display controlling means for selecting and reading video data from the storage

means and displaying an image corresponding to the read video data on the image

display device.

9.   The apparatus according to claim 8, wherein the display controlling means

controls at least one of the size, moving speed and moving pattern of an image to be

displayed on the image display device which displays an image corresponding to

video data read from the storage means.

10.   The apparatus according to claim 8, wherein the display controlling selectively

reads video data from the storage means on the basis of the tempo identified by the

identifying means and sound volume calculated by the volume calculating means.

11.   A tempo analyzing method comprising the steps of:

detecting positions of a plurality of ones, higher than a predetermined threshold,

of peaks of change in level of an input sound signal;

detecting a time interval between the detected peak positions in a predetermined unit-time interval; and

identifying the tempo of sound to be reproduced with the sound signal on the basis of one, having occurred at a high frequency, of the detected time intervals.

12.   The method according to claim 11, wherein for the identification of a tempo, the frequency of occurrence of the time interval between the peak positions detected in a plurality of the unit-time intervals is accumulated and the tempo of the sound to be reproduced is identified on the basis of the frequency of occurrence thus accumulated.

13.   The method according to claim 11, further comprising the steps of:

dividing the input sound signal into a plurality of frequency bands;

detecting the peak position in each of at least one or more of the divided frequency bands;

detecting the time interval of the peak position in each of the at least one or more frequency bands; and

identifying the tempo of the sound to be reproduced on the basis of the one, having occurred at a high, of the time intervals detected in each of at least one or more frequency bands.

14.   The method according to claim 11, further comprising the steps of:

extracting the sound signal of a frequency included in a predetermined frequency band from the input sound signal; and

detecting the peak position of the extracted sound signal.

15.   The method according to claim 11, further comprising the steps of:

calculating the sound volume of the input sound signal; and

detecting a threshold for use to detect the peak position with reference to the

calculated sound volume.

16.   The method according to claim 13, further comprising the steps of:

calculating the volumes of sound signals of frequencies included in at least one

or mode of the plurality of frequency bands divided by the frequency band dividing

means; and

setting the threshold used to detect a peak position with reference to the volume

calculated by the volume calculating means.

17.   The method according to claim 14, further comprising the steps of:

calculating the volume of the sound signal extracted by the frequency band

extracting means; and

setting a threshold used for to detect a peak position with reference to the volume

calculated by the volume calculating means.

18.   The method according to claim 11, further comprising the steps of:

selectively reading video data from a plurality of video data stored in a storage

means on the basis of the identified tempo; and

displaying an image corresponding to the read video data on an image display

device.

19.   The method according to claim 18, further comprising the step of:

controlling the size, moving speed and moving pattern of the image to be

displayed on the image display device on the basis of the identified tempo.

20.   The method according to claim 18, further comprising the step of:

selectively reading a plurality of video data stored in the storage means on the

basis of the identified tempo and calculated sound volume.